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Final Report on the Construction of Instrumentation to Perform In-House Testing of Torque Wrenches

Erik A. Perry
Indiana University - Purdue University Fort Wayne

FINAL REPORT ON THE CONSTRUCTION OF INSTRUMENTATION TO PERFORM IN-HOUSE TESTING OF TORQUE WRENCHES

prepared for

Professor Donald J. McAleece
Department of Mechanical Engineering Technology
Indiana-Purdue at Fort Wayne

prepared by

Erik A. Perry
Mechanical Engineering Technology Student
Indiana-Purdue at Fort Wayne

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This final report contains information in the areas of design, fabrication, testing, and cost of the in-house torque wrench testing instrumentation project.

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INFORMATIVE ABSTRACT

The in-house torque wrench verification instrument gives the aviation mechanic confidence in the use of his torque wrenches. This instrument verifies if the torque wrench is in good operating condition thereby ensuring proper fastener installation. The instrument consists of three major parts: (1) transducer; (2) strain indicator; and (3) peak-read instrument. The transducer utilizes resistance-type strain gages to convert the mechanical input(torque) into an electrical output(millivolts). The strain indicator converts this electrical output into a strain reading. The peak-read instrument captures the maximum strain when the torque wrench reaches its preset value. The mechanic inserts the maximum strain in an equation and obtains a mathematical torque value applied by the wrench. This mathematical value is compared with the value indicated on the torque wrench. This comparison determines the operating condition of the torque wrench.